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Metrology for Radio-Frequency Technology: A Bibliography of NIST Publications

Ruth Marie Lyons, Editor

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Metrology for Radio-Frequency Technology: A Bibliography of NIST Publications

Ruth Marie Lyons, Editor

Radio-Frequency Technology Division
Electronics and Electrical Engineering Laboratory
National Institute of Standards and Technology
Boulder, Colorado 80303-3328

August 1999

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METROLOGY FOR RADIO-FREQUENCY TECHNOLOGY
A BIBLIOGRAPHY OF NIST PUBLICATIONS

Edited by
Ruth Marie Lyons
National Institute of Standards and Technology
Boulder, CO 80303

This bibliography lists the publications by the staff of the Radio-Frequency Technology Division, formerly the Electromagnetic Fields Division, of the National Institute of Standards and Technology for the period January 1970 through July 1999. It supersedes NISTIR 5075, which listed the publications of the Electromagnetic Fields Division from January 1970 through July 1997. Selected earlier publications from the Division's predecessor organizations are included.

Key words: antennas; dielectric measurements; electromagnetic interference; microwave metrology; microwave power, impedance, attenuation; near-field antenna measurements; noise; nonionizing radiation; radiation hazards; standards; time domain; waveform metrology.

INTRODUCTION

The Radio-Frequency Technology Division was established in 1998 as a result of a programmatic restructuring of the former Electromagnetic Fields Division. The new name more accurately reflects the Division's current technical programs and characterizes its broad mission. Programs include metrology for the fundamental microwave quantities such as power, noise, impedance, and scattering parameters; standards and metrology for wireless systems; gain, pattern, and polarization measurements for antennas; electromagnetic properties of materials; measurements for high speed microelectronics; electromagnetic field characterization and electromagnetic compatibility.

All known work published by the Division staff from January 1970 through July 1999 is included. Work performed by authors before joining this Division or work by authors who have left this Division has been included only when it had special significance. A miscellaneous category includes general publications. A few references are listed in more than one category where appropriate.

Several other information sources may be useful to the reader who is interested in NIST activities connected with electromagnetic metrology. Two companion bibliographies, NISTIR 5085 and NISTIR 5086, list publications of the Electromagnetic Technology Division and the Optoelectronics Division for the same period. Topics include metrology for laser systems, optical fibers, optical communication

equipment, cryoelectronics, superconductors, and other unusual electrical engineering materials. An excellent summary of the whole field of electromagnetic metrology as it stood in 1967 was published as a special issue of the Proceedings of the IEEE (volume 55, June 1967). Advances in the following decades were described in two other special issues of the same journal (volume 66, April 1978, and volume 74, January 1986).

A Note on Abbreviations

On August 23, 1988, the National Bureau of Standards (NBS) became the National Institute of Standards and Technology (NIST); therefore, documents with either prefix are considered NIST publications. Most readers are familiar with the commonly used abbreviations for the names of the professional journals that appear in this bibliography. Some publication series are peculiar to NIST and may call for explanation. They are:

NISTIR - NIST Interagency/Internal Report
NIST TN - NIST Technical Note
NIST SP - NIST Special Publication
NIST HB - NIST Handbook
NIST JRES - NIST Journal of Research
NIST MN - NIST Monograph

NBSIR - NBS Interagency/Internal Report
NBS TN - NBS Technical Note
NBS SP - NBS Special Publication
NBS HB - NBS Handbook
NBS JRES - NBS Journal of Research
NBS MN - NBS Monograph

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NIST (NBS) Technical Notes, Special Publications, Handbooks, Journals of Research, and Monographs may be purchased from the U.S. Government Printing Office (GPO). The GPO website is http://www.access.gpo.gov/, and the order desk phone number is 202-512-1800. For a GPO bookstore near you, use the following website address http://www.access.gpo.gov/su_docs/sale/abkst001.html. The Government Printing Office usually stocks these publications for only a year or two, after which they may be purchased from the National Technical Information Service, whose website for information and ordering is at http://www.ntis.gov/. The phone number for ordering from NTIS is 703-487-4650.

Reprints of papers published in non-NIST media may be available in limited quantities from the authors.

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